

PATENT

Customer No. 22,852

Attorney Docket No. 06502.0302-00

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Paul J. HINKER

Application No.: 09/686,628

Filed: October 12, 2000

For: AUTOMATIC CONVERSION OF  
SOURCE CODE FROM 32-BIT TO  
64-BIT)  
)  
) Group Art Unit: 2122  
)  
) Examiner: Gross, Kenneth A.  
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)  
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)  
)Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97(c)**

Pursuant to 37 C.F.R. §§ 1.56 and 1.97(c), Applicant brings to the attention of the Examiner the documents listed on the attached PTO 1449. This Information Disclosure Statement (IDS) supplements IDSs filed on January 20, 2004, October 15, 2003, August 5, 2003, April 2, 2003, September 25, 2002, July 3, 2002, May 29, 2002, March 7, 2002, December 3, 2001, and October 3, 2001. This IDS is being filed after the events recited in Section 1.97(b) but, to the undersigned's knowledge, before the mailing date of either a Final action, Quayle action, or a Notice of Allowance. Under the provisions of 37 C.F.R. § 1.97(c), this Information Disclosure Statement is accompanied by a fee of \$180.00 as specified by Section 1.17(p).

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Application No. 09/686,628  
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Copies of the listed documents are attached. Applicant requests that the Examiner consider the listed documents and indicate that they were considered by making appropriate notations on the attached form.

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Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
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Dated: January 27, 2004

By:   
Frank A. Italiano  
Reg. No. 53,056

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**INFORMATION DISCLOSURE CITATION**  
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Atty. Docket No.: 06502.0302-00

Application No.: 686,628/09

Applicant:

Filing Date: October 12, 2000

Group 2122

**U.S. PATENT DOCUMENTS**

Examiner Initial*	Document Number	Date	Name	Class	Sub Class	Filing Date If Appropriate
	5,574,922	11/12/1996	James			
	6,052,763	4/18/2000	Maruyama			
	6,088,771	7/11/2000	Steely, Jr. et al.			
	6,353,869 B1	3/5/2002	Ofer et al.			
	6,430,657 B1	8/6/2002	Mittal et al.			
	6,502,136 B1	12/31/2002	Higuchi et al.			
	6,629,214 B1	9/30/2003	Arimilli et al.			

**FOREIGN PATENT DOCUMENTS**

Examiner Initial*	Document Number	Date	Country	Class	Sub Class	Translation Yes or No

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

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Date Considered:

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Form PTO 1449

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~~DI~~ JAB/FAIPLEASE STAMP TO ACKNOWLEDGE RECEIPT OF THE FOLLOWING: 30

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Group Art Unit: 2122

Filed: October 12, 2000

Examiner: K. Gross

For: AUTOMATIC CONVERSION OF SOURCE CODE FROM 32-BIT TO 64-BIT

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1. Information Disclosure Statement under 37 C.F.R. § 1.97(c)
  2. Form PTO 1449 w/ copy of five (5) documents
  3. Check: \$180.00

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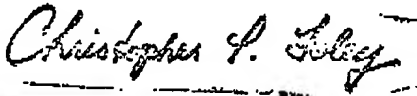
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## INFORMATION DISCLOSURE CITATION

Atty. Docket No.	06502.0302-00	Appln. No.	686,628/09
Applicant	Paul J. HINKER		
Filing Date	October 12, 2000	Group:	2122

U.S. PATENT DOCUMENTS						
Examiner Initial*	Document Number	Issue Date	Name	Class	Sub Class	Filing Date If Appropriate
	5,274,821	12/28/1993	Rouquie			
	5,840,550	06/17/1997	Coker			
	6,847,546 B1	11/11/2003	Hinker et al.			

FOREIGN PATENT DOCUMENTS						
	Document Number	Publication Date	Country	Class	Sub Class	Translation Yes or No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)	
	Buckley, A. G., "Conversion to Fortran 90: A Case Study," ACM, 1994, pp. 308-353
	Purtilo, James M. et al., "Module Reuse by Interface Adaptation," Software - Practice and Experience, 1991, pp. 539-556

Examiner	Date Considered
*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	
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## Conversion to Fortran 90: A Case Study

A. G. BUCKLEY  
Royal Roads Military College

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The features of the new standard language Fortran 90 are introduced and discussed. In order to focus the discussion, the particular context is the conversion of an existing published *ACM Transactions on Mathematical Software* algorithm from Fortran 77 to the new standard. Emphasis is on the new features of the language, including the array facilities, the use of modules, the applicability of user-defined (i-derived) data types, the reduction in machine dependence of numeric codes, and the dynamic allocation of storage. The intent is that writers of software as well as those who use Fortran in scientific and engineering work will find this a helpful introduction to the new and powerful features of Fortran 90.

Categories and Subject Descriptors: D.3.3 [Programming Languages]: Language Constructs and Features—Fortran 90; G.4 [Mathematics of Computing]: Mathematical Software

General Terms: Algorithms, Languages, Standardization

Additional Key Words and Phrases: Conversion, Fortran 90, new features, overview

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### 1. INTRODUCTION

As many readers will be aware, Fortran 90 is now upon us. The purpose of this article is to demonstrate some of the very significant gains that may be achieved through its use by examining the conversion of Algorithm 630 (see Buckley and LeNir [1985]) to Fortran 90. The resulting algorithm appears in the companion paper [Buckley 1993]. For convenience, these two are referred to as Algorithm 630 and Algorithm 734. Both solve a optimization problem that is described in Section 2.

A number of features of the new language are introduced and illustrated by examples from the converted program. Although one objective is to study the conversion of this particular algorithm, Fortran 90 is discussed in general terms as well, where it is thought appropriate to introduce readers to useful features of the language.

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Support of both the Natural Sciences and Engineering Research Council of Canada (NSERC, held at the University of Victoria), grant OGP0092109, and of the Department of National Defence of Canada, ARP grant 3705-907-P17H1A, is gratefully acknowledged.  
Author's address: Department of Mathematics, Royal Roads Military College, FMO Victoria, British Columbia, V0S 1B0 Canada.

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ACM Transactions on Mathematical Software, Vol. 20, No. 3, September 1994, Pages 308-353

SOFTWARE—PRACTICE AND EXPERIENCE, VOL. 21(6), 539-556 (JUNE 1991)

## Module Reuse by Interface Adaptation

JAMES M. PURTILLO AND JOANNE M. ATLEE

*Computer Science Department, University of Maryland, College Park, Maryland 20742,  
U.S.A.*

### SUMMARY

This paper describes a language called Nimble that allows designers to declare how the actual parameters in a procedure call are to be transformed at run time. Normally, programmers must edit an application's source in order to adapt it for reuse in some new context where the interfaces fail to match exactly (e.g. the parameters may appear in a different order, data types may not exactly match, and some data may need to be either initialized or masked out when the reusable module is integrated within a new application.) But Nimble allows programmers to adapt the interfaces of existing software without having to operate on the source manually. As a result, existing software may be easily reused in a broader range of applications, and software libraries do not need to store many variants of a component that differ only in how the interfaces are used. Nimble has been implemented on a variety of Unix hosts, and is part of a broader reuse project at the University of Maryland. Our current system is suitable for use either in conjunction with existing module interconnection languages, or stand-alone with C, Pascal and Ada source programs.

**KEY WORDS** Module interconnection language Software reuse

### INTRODUCTION

The ability to reuse components is an economic necessity within software development projects, and is critical within prototyping efforts. Systems to help identify reusable components are increasingly able to suggest application modules with the specified functionality.<sup>1</sup> However, often such modules must be adapted in some manner before they can be used. For example, parameters may appear in a different order, data types may not exactly match, and some data may need to be either initialized or masked out when the reusable module is integrated within a new application. As the amount of adaptation increases, the economic benefit of reusing that component is decreased.

In order to reduce the cost of adapting software for reuse, we turn to automatic techniques. Typically, the emphasis has been upon transformation of abstract specifications into a valid implementation, where tailoring of interfaces is performed during generation of the source programs, such as shown in References 2 and 3. A more recent development is a language for transforming control structures of an Ada-like language;<sup>4</sup> in this way programmers can easily adapt algorithm implementations for application to elaborate data sets, and tailoring of interfaces is again performed during the source to source transformation.

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Revised 28 November 1990*

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In Re Application of: Paul J. HINKER

Application No.: 09/686,628

Group Art Unit: 2122

Filed: October 12, 2000

Examiner: K. Gross

For: AUTOMATIC CONVERSION OF SOURCE CODE FROM 32-BIT TO 64-BIT

1. Information Disclosure Statement under 37 C.F.R. § 1.97(c)
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Docket No.: 6502.0302

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1. Amendment



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9/23/03  
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